

PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON

THE JULIDAE AND ISOBATIDAE IN NORTH
AMERICA.

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In contrast with the great abundance and variety of members of the diplopod families Julidae and Isobatidae in Europe, comparatively few forms of these families, as now restricted, have been recorded from North America, where they are almost wholly replaced by the Parajulidae. Having recently noted several European juloid species both in material taken at quarantine on plants arriving from Europe and in collections of established forms, I was led to suspect that we might not have any truly endemic species of Julidae or Isobatidae and to review the available American material in comparison with the corresponding portion of the European fauna. As a result I find all our species of these families thus far known to be in reality common European forms which are still often brought across the water with imported plants and other cargoes. Probably all were thus artificially introduced, most of them at early dates. They occur only in well-settled parts of the country and are as yet rare in the Middle and Far Western States.

The six valid species which I find to be established in this country together with their synonymy and known distribution here are indicated below.

JULIDAE.

GENUS *Diploiuulus* BERLESE.

This is the *Cylindroiulus* of Verhoeff. Irrespective of varying definitions, *Diploiuulus* must be applied to whatever generic group is made to include its type species, *Julus boleti* C. Koch (= *J. rufifrons* C. Koch). As this species is uniformly regarded as conforming to *Cylindroiulus*, this name must give way to *Diploiuulus*.

Diploiulus londinensis (Leach).1814. *Julus londinensis* Leach, Trans. Linn. Soc. London, XI, p. 378.1864. *Julus caeruleo-cinctus* Wood, Proc. Acad. Sci. Phil., p. 14.— *Julus hortensis* Wood, *ibid.*

This is our most commonly observed member of the family. It is abundant throughout New England and adjoining parts of Canada and over New York State. It occurs westward as far as Indiana and Illinois and southward through Pennsylvania and New Jersey to the District of Columbia, though in these directions becoming less frequent. Particularly during periods of drought, it appears sometimes to attack gourds, potatoes, lettuce and other vegetables and plants, accusations of such action having come not infrequently from different parts of New York State. In England it is said at times to attack the roots of lucerne; and in Germany occasionally to damage the potato crop.

Diploiulus luscus (Meinert).1868. *Julus luscus* Meinert, Naturh. Tidsskr., 3 R., V, p. 9.1887. *Julus owenii* Bollman, Entom. Amer., II, p. 228.1891. *Julus frisius* Verhoeff, Berl. Ent. Zeits., XXXVI, Hft. 1, p. 133, pl. 6, figs. 17-21.1914. *Julus hesperus* Chamberlin, Canad. Ent., p. 314.

This is a small form ranging mostly from 10 mm. to 15 mm. in length. It is found throughout the range indicated for *D. londinensis* above and occurs as well in the Far West, the writer having taken it at Salt Lake City in Utah and at Santa Barbara and Los Angeles in California. He has also seen specimens from other localities in the latter State sent him for identification. There seems little doubt that this is the true *luscus* of Meinert; but if *luscus* is held to be indeterminable with certainty, then *owenii* must take precedence over *frisius*. Comparison of American specimens with some from Holland shows complete agreement in the gonopods of the male.

GENUS **Brachyiulus** BERLESE.**Byachyiulus pusillus** (Leach).1814. *Julus pusillus* Leach, Trans. Linn. Soc. London, XI, p. 379.1841. *Julus exiguus* Brandt, Recueil, p. 85.1864. *Julus virgatus* Wood, Proc. Acad. Sci. Phil., p. 14.1875. *Julus stuxbergii* Fanzago, Atti d. Soc. Veneto-Trent., IV, p. 150.

This well-known species is widely distributed in this country, where it has hitherto been listed under Wood's name. It is common in New England and southward to North Carolina; and I have recently received specimens taken at Jackson, Miss. Westward it has been found in Ohio, Indiana and Illinois, and in California (e. g. at Stanford). This species is sometimes placed by European workers in a subgenus *Microbrachyiulus*; but as it is the type of *Brachyiulus* any genus or subgenus in which it is included must bear this name.

GENUS *Ophiulus* BERLESE.

Ophiulus longabo (C. Koch).

1847. *Julus longabo* C. Koch, Syst. d. Myr., p. 113.
 1863. *Julus serpentinus* C. Koch, Die Myriap., II, p. 106, fig. 228.
 — *Julus ferreus* C. Koch, ibid., p. 107, fig. 229.
 1864. *Julus canaliculatus* Wood, Proc. Acad. Sci. Phil., p. 12.
 — *Julus laqueatus* Wood, ibid., p. 13.
 1868. *Julus fallax* Meinert, Naturh. Tidsskr., 3R., V, p. 15.

In recent years the name *fallax* of Meinert has been most used for this species. As there seems no longer reasonable doubt as to the identity of this species with Koch's *longabo*, the latter name is here adopted. As indicated above, Wood's names *canaliculatus* and *laqueatus* also have precedence over *fallax*. In this country the species is best established in Pennsylvania, particularly about Philadelphia, where I have found it in abundance. It was also apparently common there in Wood's day. It is frequent in New Jersey and in Delaware and the District of Columbia. I have never taken it in New England, although it probably will be found there since it occurs in Canada, being not infrequent about Quebec.

ISOBATIDAE.

The use of Protoiulidae for this family is inadmissible both because it is antedated by the names Isobatidae and Blaniulidae and also because it is not based upon an included genus.

GENUS *Blaniulus* GERVAIS.

Blaniulus guttulatus (Bosc).

1792. *Julus guttulatus* Bosc. Bull. d. l. Soc. philom. de Paris, p. 12.
 1818. *Julus fragariarum* Lamarck, Hist. nat. d. anim. s. vert., V.
 1837. *Blaniulus guttulatus* Gervais, Ann. d. Sci. Nat., ser. 2, VII, p. 45.

The use of Typhloblaniulus or Trichoblaniulus as generic or subgeneric names over this species is inadmissible since it is the type of Blaniulus. I have seen numerous specimens of this species collected about Quebec City, Canada, by Mr. Frits Johansen, and a few taken in Massachusetts, one of them many years ago by Dr. Hagen. It has doubtless been often overlooked because of its small size and obscure habits. In Europe it is said sometimes to be a pest in potato crops and also to injure beans, beets, cucumbers and gourds.

GENUS *Nopoiulus* MENGE.

Nopoiulus pulchellus (Leach).

1814. *Julus pulchellus* Leach, Trans. Linn. Soc. London, XI, p. 379.
 1841. *Julus minutus*¹ Brandt, Recueil, p. 89.
 1821. *Julus pusillus* Say (nom. preocc. Leach, 1814) Journ. Acad. Sci. Phil., p. 105.

¹This name preoccupies the *Julus minutus* of Porat (1889). The latter may be replaced by *Julus cibdellus*, nom. nov.

1851. *Nopoiulus punctulatus* Menge, Neueste Schr. d. naturf. Ges. Danzig, IV, p. 4 Hft., p. 7.
1868. *Blaniulus venustus* Meinert, Naturh. Tidsskr., 3 R., V, p. 20.
1887. *Julus lineatus* McNeill, Proc. U. S. N. M., X, p. 324.
1888. *Nemasoma minutum* Bollman, Proc. U. S. N. M., XI, p. 339; and in subsequent writings.

In Europe this species has been most commonly known under Meinert's name, *Blaniulus venustus*. It is widespread in the United States, particularly in the region east of the Mississippi River. It is a common form nearly everywhere in New England, New York, Ohio, Indiana, Illinois, Tennessee, Pennsylvania, New Jersey, Delaware, etc.; but I have never seen it from any of the Pacific States. It is often found under the bark of decaying trees.